



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,239	03/10/2004	Karl-Hermann Busse	PR-59	3554
7590		01/31/2006	EXAMINER	
Friedrich Kueffner		MACARTHUR, SYLVIA		
Suite 910		ART UNIT		
317 Madison Avenue		PAPER NUMBER		
New York, NY 10017		1763		
DATE MAILED: 01/31/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/798,239

Applicant(s)

BUSSE ET AL.

Examiner

Sylvia R. MacArthur

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/7/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1,4,7, 15-19, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Shamouilian et al (US 5,592,358).

Shamouilian et al teaches a electrostatic chuck for magnetic flux processing.

Shamouilian further teaches:

Regarding claim 1: A mobile transportable electrostatic substrate

Holder (chuck 20), having a diameter and/or edge lengths matching a

diameter and/or edge lengths of a substrate to be transported

with a tolerance of less than 0.1 mm, locally, at certain

locations, or everywhere, see Fig. 1.

Regarding claim 4: The substrate holder according to claim 1, wherein

the substrate holder has one or several bores 36 and/or perforations for

passing a gas therethrough for cooling the substrate, see Fig.1 and col. 3 lines 23-35.

Regarding claim 7: The substrate holder according to claim 1, wherein facing the substrate

in a front side of the substrate holder one or several

Art Unit: 1763

channels are provided that are connected to one or several bores for passing a cooling gas flow therethrough, see Fig.1

Regarding claim 15: The substrate holder according to claim 13, having a front side facing the at least one of the substrate holder locally, at certain locations, or back side, substrate and a wherein in front side and the backside of the everywhere one or several magnetic metals and/or non-magnetic metals, metal alloys and/or metalloids are introduced in the form of solid bodies and/or the front side and/or the backside of the substrate holder is coated locally, everywhere with one or several magnetic metals and/or non-magnetic metals, metal alloys and/or metalloids, see col. 4 lines 36-49.

Regarding claim 16: The substrate holder according to claim having a front side facing the substrate and a back side, wherein in at least one of the front side and the back side one or several unipolar or/and multi-polar electrodes 24 are present, see Figs. 2a-2c.

Regarding claim 17: The substrate holder according to claim 1, wherein a receptacle for the substrate holder comprises one or several magnets (magnetic shunt 34).

Regarding claim 18: The substrate holder according to claim 1, manufactured by glass multi-layer technology and/or ceramic multi-layer technology and/or plastic multi-layer technology, this is a product-by-process claim and is thus not given patentable weight. Nevertheless the substrate holder of Shamouilian et al is manufactured by ceramic multi-layer technology according to the Figures, which depict a plurality of layers and col. 5 lines 15-36.

Art Unit: 1763

Regarding claim 19: The substrate holder according to claim 1, comprised of least one of the materials selected from the group consisting of ceramics, glass material, photo-texture glass, glass ceramics, semiconductor materials, and plastic materials, and further comprising metals and/or metal alloys, see col. 4 lines 36-62 and col. 5 lines 23-35.

Regarding claim 21: The substrate holder according to claim 1, configured to be electrically supplied, electrically charged and/or electrically discharged continuously or discontinuously, see col. 2 lines 45-67.

3. Claims 1,4-7,10, 13-16, 18, 19, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Mizuno et al (US 2004/0040665).

Mizuno et al teaches an electrostatic chuck device 40 provided with a dielectric plate with a surface embossed to give it a plurality of projections, an electrode, and an external power supply, abstract.

Regarding claim 1: A mobile transportable electrostatic substrate holder, having a diameter and/or edge lengths matching a diameter and/or edge lengths of a substrate to be transported with a tolerance of less than 0.1 mm, locally, at certain locations, or everywhere, see Fig.1.

Regarding claim 4: The substrate holder according to claim 1, wherein the substrate holder and/or a receptacle for the substrate holder has one or several bores and/or perforations for

Art Unit: 1763

passing a gas therethrough for cooling (gas source 28 is illustrated in Fig.1)the substrate and/or for passing lifting and/or contact pins see [0078]and/or sensors'

therethrough. A gas source 28 is present, that gas source is capable of performing heat transfer to maintain the temperature of the substrate. The claim states that the function of the gas is to "cool", however it is noted that this is a matter of an intended use and is not given patentable weight.

Regarding claim 5: The substrate holder according to claim wherein the substrate holder and/or the substrate is electrically charged and/or electrically discharged inside or outside of a processing machine therethrough contact pins, see [0078].

Regarding claim 6: The substrate holder according to claim 1, wherein the Substrate holder and/or the substrate is moveable by lifting pins, see [0078].

Regarding claim 7: The substrate holder according to claim 1, wherein facing the substrate in a front side of the substrate holder and/or in both sides of the substrate holder and/or in a surface of a receptacle of the substrate holder, one or several channels are provided that are connected to one or several bores for passing a cooling gas flow therethrough, see Fig.1.

Regarding claim 10: The substrate holder according to claim 1, wherein. between the substrate and the substrate holder and/or between receptacle for the substrate holder and the substrate holder one or several intermediate spaces are present for cooling with a cooling gas, see Fig.1.

Art Unit: 1763

Regarding claim 13: The substrate holder according to claim 1, having a substrate and a back side, wherein least one of the front side and the back side of the substrate holder and/or a receptacle for the substrate holder is textured by sawing, milling, turning, grinding and/or cutting, for example, by laser beam and/or electron beam, wet-chemical etching, plasma etching, or sandblasting, preferably in a grid shape, order to provide a cooling surface area as large as possible for a cooling gas. This claim does not provide further structural limitation, as it is a product by process claim. Note that the abstract teaches that the surface is embossed. The method used to cause the texture is not given patentable weight.

Regarding claim 14: The substrate holder according to claim 13, wherein the front side and/or the back side the substrate holder and/or the receptacle is machined by grinding and/or lapping and/or polishing or milling or turning in order to generate flatness and a plane-parallel configuration. This claim does not provide further structural limitation, as it is a product by process claim. Note that the abstract teaches that the surface is embossed. The method used to cause the texture is not given patentable weight.

Regarding claim 15: The substrate holder according to claim 13, having a front side facing the at least one of the substrate holder locally, at certain locations, or back side, substrate and a wherein in

Art Unit: 1763

front side and the back side of the  
everywhere one or several magnetic metals and/or non-magnetic metals,  
metal alloys and/or metalloids are introduced in the form of  
solid bodies and/or the front side and/or the backside of  
the substrate holder are coated locally,  
everywhere with one or several magnetic metals and/or non-  
magnetic metals, metal alloys and/or metalloids. The materials of construction are discussed in  
[0113, 0114, and 0120].

Regarding claim 16: The substrate holder according to claim having a  
front side facing the substrate and a back side, wherein in  
at least one of the front side and the back side one or  
several unipolar or/and multi-polar electrodes are present, see [0082].

Regarding claim 18: The substrate holder according to claim 1,  
manufactured by glass multi-layer technology and/or ceramic  
multi-layer technology and/or plastic multi-layer technology, see Fig.1.

Regarding claim 19: The substrate holder according to claim  
1, comprised of least one of the materials selected from the  
group consisting of ceramics, glass material, photo-texture  
glass, glass ceramics, semiconductor materials, and plastic  
materials, and further comprising metals and/or metal alloys. The materials of construction are  
discussed in [0113, 0114, and 0120].

Regarding claim 20: According to claim having



Art Unit: 1763

front side facing the substrate and a back side, wherein at least one of the front side and the back side and/or a receptacle for the substrate holder is fine-machined by at least one of polishing, grinding, lapping, milling, and turning for achieving a high gas seal-tightness. This claim does not provide further structural limitation, as it is a product by process claim. Note that the abstract teaches that the surface is embossed. The method used to cause the texture is not given patentable weight.

Regarding claim 21: The substrate holder according to claim 1, configured to be electrically supplied, electrically charged and/or electrically discharged continuously or discontinuously, see abstract and [0082].

3. Claims 1,2, 4-16, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Weldon et al (US 6,108,189).

Weldon et al teaches an electrostatic chuck 100 having improved gas conduits.

Regarding claim 1: A mobile transportable electrostatic substrate holder, having a diameter and/or edge lengths matching a diameter and/or edge lengths of a substrate to be transported with a tolerance of less than 0.1 mm, locally, at certain locations, or everywhere, see Fig.2.

Regarding claim 2: A substrate holder according to claim 1, wherein an exposed area of the substrate holder that is not covered by

Art Unit: 1763

the substrate to be transported is up to 30 mm thicker or up to 10 mm thinner, locally, at certain locations, or everywhere, than a covered area of the substrate holder covered by the substrate, the rim is depicted in Fig. 3b.

Regarding claim 4: The substrate holder according to claim 1, wherein the substrate holder and/or a receptacle for the substrate holder has one or several bores and/or perforations for passing a gas therethrough (see Fig. 2, 4a,4b) for cooling the substrate and/or for passing lifting and/or contact pins (see col.7 line 25-34) and/or sensors' therethrough.

Regarding claim 5: The substrate holder according to claim wherein the substrate holder and/or the substrate is electrically charged and/or electrically discharged inside or outside of a processing machine therethrough contact pins, see col. 7 lines 25-34.

Regarding claim 6: The substrate holder according to claim 1, wherein the Substrate holder and/or the substrate are moveable by lifting pins, see col. 7 lines 25-34.

Regarding claims 7-9, 12: The substrate holder according to claim 1, wherein facing the substrate in a front side of the substrate holder and/or in both sides of the substrate holder and/or in a surface of a receptacle of the substrate holder, one or several channels are provided that are connected to one or several bores for passing a cooling gas flow therethrough, see Fig. 4a.

Art Unit: 1763

Regarding claim 10: The substrate holder according to claim 1, wherein between the substrate and the substrate holder and/or between receptacle for the substrate holder and the substrate holder one or several intermediate spaces are present for cooling with a cooling gas. See Fig. 4a.

Regarding claim 11: The substrate holder according to claim 1, wherein cooling gas is guided in a circuit and is reusable, see Fig. 2.

Regarding claim 13: The substrate holder according to claim 1, having a substrate and a back side, wherein least one of the front side and the back side of the substrate holder and/or a receptacle for the substrate holder is textured by sawing, milling, turning, grinding and/or cutting, for example, by laser beam and/or electron beam, wet-chemical etching, plasma etching, or sandblasting, preferably in a grid shape, order to provide a cooling surface area as large as possible for a cooling gas, see col. 8 lines 28-59. This claim does not provide further structural limitation, as it is a product by process claim. Note that the abstract teaches that the surface is embossed. The method used to cause the texture is not given patentable weight.

Regarding claim 14: The substrate holder according to claim 13, wherein the front side and/or the back side the substrate holder

Art Unit: 1763

and/or the receptacle is machined by grinding and/or lapping and/or polishing or milling or turning in order to generate flatness and a plane-parallel configuration. This claim does not provide further structural limitation, as it is a product by process claim. Note that the abstract teaches that the surface is embossed. The method used to cause the texture is not given patentable weight.

Regarding claim 15: The substrate holder according to claim 13, having a front side facing the at least one of the substrate holder locally, at certain locations, or back side, substrate and a wherein in front side and the back side of the everywhere one or several magnetic metals and/or non-magnetic metals, metal alloys and/or metalloids are introduced in the form of solid bodies and/or the front side and/or the back side of the substrate holder are coated locally, everywhere with one or several magnetic metals and/or non-magnetic metals, metal alloys and/or metalloids, see col. 9 lines 15-34.

Regarding claim 18: The substrate holder according to claim 1, manufactured by glass multi-layer technology and/or ceramic multi-layer technology and/or plastic multi-layer technology, see Fig. 2.

Regarding claim 19: The substrate holder according to claim 1, comprised of least one of the materials selected from the group consisting of ceramics, glass material, photo-texture

Art Unit: 1763

glass, glass ceramics, semiconductor materials, and plastic materials, and further comprising metals and/or metal alloys see col. 9 lines 15-34..

Regarding claim 20: According to claim having front side facing the substrate and a back side, wherein at least one of the front side and the back side and/or a receptacle for the substrate holder is fine-machined by at least one of polishing, grinding, lapping, milling, and turning for achieving a high gas seal-tightness. This claim does not provide further structural limitation, as it is a product by process claim. Note that the abstract teaches that the surface is embossed. The method used to cause the texture is not given patentable weight.

Regarding claim 21: The substrate holder according to claim 1, configured to be electrically supplied, electrically charged and/or electrically discharged continuously or discontinuously, col. 7 lines 53-67.

3. Claims 1,2,4, 13-15, 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Flannigan (US 6,258,227).

Flannigan teaches a method and apparatus for fabricating a wafer mask on a chuck wherein:

Regarding claim 1: A mobile transportable electrostatic substrate holder, having a diameter and/or edge lengths matching a diameter and/or edge lengths of a substrate to be transported with a tolerance of less than 0.1 mm, locally, at certain

Art Unit: 1763

locations, or everywhere, see col. 4 lines 1-31.

Regarding claim 2: A substrate holder

according to claim 1, wherein an exposed area of the

substrate holder that is not covered by

the substrate to be transported is up to 30 mm thicker or up

to 10 mm thinner, locally, at certain locations, or

everywhere, than a covered area of the substrate holder

covered by the substrate, see Fig. 1.

Regarding claim 4: The substrate holder according to claim 1, wherein

the substrate holder and/or a receptacle for the substrate

holder has one or several bores and/or perforations for

passing a gas therethrough for cooling the substrate and/or

for passing lifting and/or contact pins and/or sensors'

therethrough, see the paragraph adjoining cols 4 and 5..

Regarding claim 13: The substrate

holder according to claim 1, having a

substrate and a back side, wherein

least one of the front side and the back side of the

substrate holder and/or a receptacle for the substrate holder

is textured by sawing, milling, turning, grinding and/or

cutting, for example, by laser beam and/or electron beam,

wet-chemical etching, plasma etching, or sandblasting,

Art Unit: 1763

preferably in a grid shape, order to provide a cooling

surface area as large as possible for a cooling gas. This claim does not provide further structural limitation, as it is a product by process claim. Note that the abstract teaches that the surface is embossed. The method used to cause the texture is not given patentable weight.

Regarding claim 14: The substrate holder according to claim 13, wherein the front side and/or the back side of the substrate holder

and/or the receptacle is machined by grinding and/or lapping

and/or polishing or milling or turning in order to generate

flatness and a plane-parallel configuration. This claim does not provide further structural limitation, as it is a product by process claim. Note that the abstract teaches that the surface is embossed. The method used to cause the texture is not given patentable weight.

Regarding claim 15: The substrate holder according to claim

13, having a front side facing the at least one of the substrate holder locally, at certain locations, or back side, substrate and a wherein in front side and the back side of the

everywhere one or several magnetic metals and/or non-magnetic metals,

metal alloys and/or metalloids are introduced in the form of

solid bodies and/or the front side and/or the back side of

the substrate holder are coated locally,

everywhere with one or several magnetic metals and/or non-

magnetic metals, metal alloys and/or metalloids, the materials of construction are discussed in col. 5 lines 46-64.

Art Unit: 1763

Regarding claim 18: The substrate holder according to claim 1, manufactured by glass multi-layer technology and/or ceramic multi-layer technology and/or plastic multi-layer technology, see Fig.1 .

Regarding claim 19: The substrate holder according to claim 1, comprised of least one of the materials selected from the group consisting of ceramics, glass material, photo-texture glass, glass ceramics, semiconductor materials, and plastic materials, and further comprising metals and/or metal alloys col. 5 lines 46-64.

Regarding claim 20: According to claim having front side facing the substrate and a back side, wherein at least one of the front side and the back side and/or a receptacle for the substrate holder is fine-machined by at least one of polishing, grinding, lapping, milling, and turning for achieving a high gas seal-tightness. This claim does not provide further structural limitation, as it is a product by process claim. Note that the abstract teaches that the surface is embossed. The method used to cause the texture is not given patentable weight.

4. Claims 22,23, 25,26, 28, 31, 35-37, and 39-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Busse et al (US 6,215,641).

Busse et al teaches an electrostatic device for supporting wafers.

Regarding claim 22: A mobile transportable electrostatic substrate



Art Unit: 1763

holder, having a diameter and/or edge lengths smaller by 0.1 mm to 30 mm, locally, at certain locations, or everywhere, than a diameter and/or edge lengths of a substrate to be transported, see Fig. 1,2 where 4 is the pedestal,5 is the wafer, and 10 is the chuck or substrate holder..

Regarding claim 23: A substrate holder according to claim 22, not covered wherein an exposed area of the substrate holder that is by the substrate to be transported is up to 30 mm thicker or up to 10 mm thinner, locally, certain locations, or everywhere, than a covered area of the substrate holder covered by the substrate, see polished ring 16 .

Regarding to claim 25: A substrate holder according to claim 22, wherein the substrate holder and/or a receptacle for the substrate holder has one or several bores and/or perforations for passing a gas therethrough for cooling the substrate and/or for passing lifting and/or contact pins and/or sensors therethrough.

Regarding claim 28: The substrate holder according to claim 22, wherein in a front side of the substrate holder facing the substrate and/or in both sides of the substrate holder and/or in a surface of 4 receptacle of the substrate holder, one or several channels are provided that are connected to one or several bores for passing a cooling gas flow therethrough.

Regarding claim 31: The substrate holder according to claim 22, wherein

Art Unit: 1763

between the substrate and the substrate holder and/or between

a receptacle for the substrate holder and the substrate

holder one or several intermediate cooling with cooling gas, Fig.4 and col. 4 lines 33-36.

Regarding claim 36: The substrate holder according to claim 22, having

a front side facing the substrate and a back side, wherein in

at least one of the front side and the back side of the

substrate holder locally, at certain locations, or everywhere one or several magnetic metals,

and/or non-magnetic metals, metal alloys and/or metalloids are introduced in the form of

solid bodies and/or the front side and/or the back side of the substrate holder are coated locally at

certain locations or everywhere with one several magnetic metals and/or non-

locations, or everywhere or several magnetic metals, metal alloys

and/or metalloids the materials of construction are discussed in col. 7 lines 55-67 and col.8 lines

54-61.

Regarding claim 37: The substrate holder according to claim 22, having

front side facing the substrate and a back side, wherein in

at least one of the front side and the backside one or several unipolar or/and multi-polar

electrodes are present. Electrode 2 is provided.

Regarding claim 39: The substrate holder according to claim 22,

manufactured by glass multi-layer technology and/or ceramic

multi-layer technology and/or plastic multi-layer technology, see Fig.2 .

Regarding claim 40: The substrate holder according to claim 22,

comprised of at least one of the materials selected from the

Art Unit: 1763

group consisting of ceramics, glass material, photo-texture glass, glass ceramics, semiconductor materials, and plastic materials, and further comprising metals and/or metal alloys, the materials of construction are discussed in col. 7 lines 55-67 and col.8 lines 54-61.

Regarding claim 42 : The substrate holder according to claim 22, configured to be electrically supplied, electrically charged and/or electrically discharged continuously or discontinuously, see col. 8 lines 16-31

5. Claims 43, 44, 46-54, 57, 58, and 60-63 are rejected under 35 U.S.C. 102(b) as being anticipated by Sago et al (US 2001/0054389).

Sago et al teaches an electrostatic chucking mechanism and surface processing apparatus.

Regarding claim 43: A mobile transportable electrostatic substrate holder, having a diameter and/or edge lengths greater by 0.1mm up to 150 mm, locally, at certain locations, everywhere, than a diameter and/or substrate to be transported, see Fig. 1.

Regarding claim 44: A substrate holder according to claim 43, wherein an exposed area of the substrate holder that is not covered by the substrate to be transported is up to 30 mm thicker or up to 10 mm thinner, locally, at certain locations, or here than a covered area of the substrate holder, a rim is illustrated in Fig. 2.

Regarding claim 46: The substrate holder according to claim 43, wherein the substrate holder and/or a receptacle for the substrate holder has one or several bores and/or perforations for passing a gas therethrough for cooling the substrate and/or for passing lifting and/or contact pins and/or sensors

Art Unit: 1763

therethrough, see Figs. 1,2, and [0044].

Regarding claim 47: The substrate holder according to claim 43, wherein the substrate holder and/or the substrate is electrically charged and/or electrically discharged inside or outside of a processing machine through contact pins, see [0044].

Regarding claim 48: The substrate holder according to claim 43, the substrate holder and/or the substrate is moveable by lifting pins 7 and [0044] .

Regarding claim 49: The substrate holder according to claim 43, wherein in a front side of the substrate holder facing the substrate and/or in both sides of the substrate holder and/or in a surface of a receptacle of the substrate holder, one or several channels are provided that are connected to one several bores for passing a cooling gas flow therethrough, see Fig. 1, 2, and [0025].

Regarding claim 50: The substrate holder according to claim 43, wherein the substrate has a front side facing the substrate and a back side facing away from the substrate wherein the back side and/or the front side has one or several sealing surfaces and/or seals, [0045].

Regarding claim 51: The substrate holder according to claim 43, comprising seals comprised of solid polymers and/or solid metals or comprised coatings made of polymers and/or metals, wherein the seals are provided locally or at several locations, see [0020].

Regarding claim 52: The substrate holder according to claim 43,

Art Unit: 1763

Wherein between the substrate and the substrate holder and/or between a receptacle for the substrate holder and the substrate holder one or several intermediate spaces are present for cooling with a cooling gas, see Fig.1 and 2.

Regarding claim 53: The substrate holder according to claim 43, a cooling gas is guided in a circuit and is reusable, Fig, 1 illustrates the recirculation of the cooling gas.

Regarding claim 54: The substrate holder according to claim 43, wherein in a receptacle for the substrate holder one or several sealing surfaces and/or seals are provided, [0045].

Regarding claim 57: The substrate holder according to claim 43.

having a front side facing the substrate and a back side, wherein in at least one of the front side and the back side of substrate holder locally, at certain locations, or everywhere one several magnetic metals and/or non-magnetic metals, metal alloys and/or metalloids are introduced in the form of solid bodies and/or the front side and/or the back side of the substrate holder are coated locally, at certain locations everywhere with one or several magnetic metals and/or non-magnetic metals, metal alloys and/or metalloids see [0020].

Regarding claim 58: The substrate holder according to claim 43, having a front side facing the substrate and a back side, wherein in at least one the front side and the back side one or

Art Unit: 1763

several unipolar or/and multi-polar electrodes are present.

Regarding claim 60: The substrate holder according to claim 43, manufactured by glass multi-layer technology and/or ceramic multi-layer technology and/or plastic multi-layer technology, see Fig. 2.

Regarding claim 61: The substrate holder according to claim 43, comprised of at least one of the materials selected from the group consisting of ceramics, glass material, photo-texture glass, glass ceramics, semiconductor materials, and plastic materials, and further comprising metals and/or metal alloys, see [0020].

Regarding claim 62: The substrate holder according to claim 43, having a front side facing the substrate and a back side, wherein at least one of the front side and the back side and/or receptacle for the substrate holder is fine-machined by at least one of polishing, grinding, lapping, milling, and turning for achieving a high gas seal-tightness Fig.2 illustrates the chuck is textured, the method used to texture the chuck is a product by process limitation and is not given patentable weight.

Regarding claim 63: The substrate holder according to claim 43, configured to be electrically supplied, electrically charged and/or electrically discharged continuously or discontinuously, see [0042] .

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 1763

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Flannigan.

The teachings of Flannigan were discussed above.

Flannigan fails to explicitly teach the structure of the vacuum holder. However, col.4 lines 1-31 teaches that the chuck 202 is supported upon assembly 206 (receptacle) for retaining by vacuum clamping. Furthermore, the citation adds that vacuum elements used for substrate support are widely known in the art. Thus, it would have been obvious to use the holes as illustrated in Fig.1 of Flannigan for vacuum support.

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Busse in view of Flannigan.

The teachings of Busse were discussed above. Busse fails to teach vacuum support.

The teachings of Flannigan were discussed above.

The motivation to use the holes as illustrated in the support of Busse for heat transfer and support for the substrate are thus taught by Flannigan. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to use the teachings of Flannigan in the apparatus of Busse.

9. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sago in view of Flannigan.

The teachings of Sago were discussed above. Sago fails to teach vacuum support.

The teachings of Flannigan were discussed above.

The motivation to use the holes as illustrated in the support of Sago for heat transfer and support for the substrate are thus taught by Flannigan. Thus, it would have been obvious

Art Unit: 1763

for one of ordinary skill in the art at the time of the claimed invention to use the teachings of Flannigan in the apparatus of Sago.

10. Claims 27, 29-35 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Busse in view of Weldon et al.

The teachings of Busse were discussed above.

Busse fails to teach:

Regarding claim 27: lift pins

Regarding claims 29, 30, and 33: seals

Regarding claims 31,32: recirculation of cooling gas

Regarding claims 34 and 35: Busse fails to teach a textured substrate holder surface. Fig. 1 of Weldon teaches a textured surface. Note, however that the process by which the teature was made is not given patentable weight. The surface could have been manufactured by any of the method provided.

The teachings of Weldon were discussed above.

Weldon teaches lift pins in col.7 liens 27-35. The motivation to provide lift pins in the apparatus of Busse is to provide a means of lifting the substrate off the holder as cited in Weldon. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide lift pins in the apparatus of Busse.

Weldon further teaches the recirculation of heat transfer gas.

The motivation to recirculate the heat transfer gas is that it way to conserve time and a cost savings in maintaining the temperature of the substrate support. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to use



Art Unit: 1763

the teachings of Weldon in the apparatus of Busse. Likewise, the motivation to modify the apparatus of Busse to include seals is that it the seals provide an enhanced level of support for the wafer in the harsh semiconductor manufacturing environment. Thus, it would have been obvious for one ordinary skill in the art at the time of the claimed invention to provide seals in the apparatus of Busse as taught by Weldon.

11. Claims 50, 51, and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sago in view of Weldon et al.

The teachings of Sago were discussed above. Sago fails to teach seals. The teachings of Weldon were discussed above. The motivation to modify the apparatus of Busse to include seals is that it the seals provide an enhanced level of support for the wafer in the harsh semiconductor manufacturing environment. Thus, it would have been obvious for one ordinary skill in the art at the time of the claimed invention to provide seals in the apparatus of Sago as taught by Weldon.

12. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Busse in view of Shamouilian et al.

The teachings of Busse were discussed above.

Busse fails to teach that the holder comprises magnets.

The teachings of Shamouilian were discussed above. Specifically, the substrate holder comprising a receptacle for the substrate holder comprises one or several magnets (magnetic shunt 34).

Art Unit: 1763

The motivation to modify the holder of Busse to include a magnet is that when a chuck is used to electrostatic ally hold a substrate in the chamber containing a magnetic flux, the magnetic shunt causes the flux in the chamber to be depleted above the portions which are proximate the shunt. This results in a more uniform processing of the substrate held by the chuck. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide the magnetic shunt of Shamouilian.

13. Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sago in view of Weldon et al.

The teachings of Sago were discussed above.

Sago fails to teach the recirculation of the cooling gas.

The motivation to recirculate the heat transfer gas is that it way to conserve time and a cost savings in maintaining the temperature of the substrate support. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to use the teachings of Weldon in the apparatus of Sago.

14. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sago in view of Shamouilian et al.

The teachings of Sago were discussed above.

Sago fails to teach that the holder comprises magnets.

The teachings of Shamouilian were discussed above. Specifically, the substrate holder comprising a receptacle for the substrate holder comprises one or several magnets (magnetic shunt 34).

Art Unit: 1763

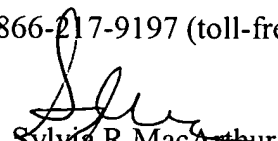
The motivation to modify the holder of Sago to include a magnet is that when a chuck is used to electrostatically holder a substrate in the chamber containing a magnetic flux, the magnetic shunt causes the flux in the chamber to be depleted above the portions which are proximate the shunt. This results in a more uniform processing of the substrate held by the chuck. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide the magnetic shunt of Shamouilian.

### *Conclusion*

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the core hours of 9 a.m. and 3 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sylvia R MacArthur

Application/Control Number: 10/798,239

Page 27

Art Unit: 1763

Patent Examiner  
Art Unit 1763

January 22, 2006